HRL COMPLIANCE SOLUTIONS
P.O. Box 1708 • Artesia, NM 88211
www.hrlcomp.com

July 8, 2020

Mr. Tom Bynum
Devon Energy
6488 Seven Rivers Highway
Artesia, New Mexico 88211
Email: Tom.bynum@dvn.com

Subject: **Site Characterization, Remediation Plan, and Remediation Cost Estimate**
Ice Dancer 30 Federal Com #002H (November 2018)
2RP-5099
Eddy County, New Mexico

Dear Mr. Bynum:

HRL Compliance Solutions, Inc. (HRL) is pleased to submit this characterization report, remediation plan, and remediation cost estimate for the November 1, 2018 release at the Ice Dancer 30 Federal Com 2H (Site). The release is at latitude 32.269771082 and longitude -103.918919702 in Eddy County, New Mexico (Figure 1).

Site Background

On November 1, 2018, a release of 30 barrels (bbls.) of oil was observed at the Site. The release was due to equipment failure when back pressure on the sales side of the high-pressure separator stuck. The high-pressure separator swamped out, backing up fluid to the catch-all separator, which subsequently popped off. 25 bbls. of oil were recovered.

Because the volume released was greater than 25 barrels; this is considered a major release according to New Mexico Oil Conservation Division (NMOCD). On November 12, 2018, Devon reported the release to the NMOCD on a Release Notification and Corrective Action Form (Form C-141) (Attachment B). The release was assigned Remediation Permit (RP) number 2RP-5099.

Scope of Work

Devon has requested HRL to provide the following deliverables:

- Research the information as specified in the Site Characterization on the New Mexico Oil and Conservation Division (NMOCD) Form C-141
- Prepare a map with sample points labeled
- Prepare a table summarizing the results obtained during the site characterization activities

- Prepare a site characterization report including a remediation plan per NMOCD closure requirements and related cost estimates

New Mexico Administrative Code (NMAC) Site Characterization Criteria

Title 19, Chapter 15, Part 29, Section 11 of the New Mexico Administrative Code (NMAC) provides requirements for release characterization once the free liquids and recoverable materials have been removed from the Site.

Depth to Groundwater

Depth to groundwater at the release was estimated by evaluating data from the New Mexico Office of the State Engineer (NMOSE) and the United States Geological Survey (USGS) (Figure 2). The nearest groundwater well was approximately 1 mile from the Site; the depth to water in this well was 390 feet below ground surface (bgs).

Wellhead Protection Area

There are no sources of water, including springs, wells, or other sources of fresh water, within one-half mile of the release (Figure 2).

Distance to Nearest Significant Watercourse

A significant watercourse is defined as "…a watercourse with a defined bed and bank either named or identified by a dashed blue line on a USGS 7.5-minute quadrangle map or the next lower order tributary with a defined bed and bank" (19.15.17.7 NMAC) (Figure 2). There are no significant watercourses within one-half mile of the lateral extent of the release.

Additional Site Characterization Criteria

The following is additional information related to characterization of the Site.

Site Characterization	Response/Discussion
What is the shallowest depth to groundwater beneath the area affected by the release?	Greater than 100 feet
Did the release impact groundwater or surface water?	No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or other significant watercourse?	No
Are the lateral extents of the release within 200 feet of a lakebed, sinkhole, or playa lake?	No

Site Characterization	Response/Discussion
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital institution, or church?	No
Are the lateral extents of the release within 500 feet of a spring or private, domestic fresh water well used by less than five households for domestic or stock watering purposes?	No
Are the lateral extents of the release within 1,000 feet of any fresh water well or spring?	No
Are the lateral extents of the release within any incorporated municipal boundaries?	No
Are the lateral extents of the release within a defined municipal fresh water well field?	No
Are the lateral extents of the release within 300 feet of a wetland?	No
Are the lateral extents of the release overlying a subsurface mine?	No
Are the lateral extents of the release overlying an unstable area such as karst geology?	The Site is in an area of high potential for karst topography
Are the lateral extents of the release within the 100-year floodplain?	No
Did the release impact areas not on an exploration, development, production, or storage site?	No

Site Delineation

Prior to initiating field activities, HRL submitted a Mechanical Excavation Permit to Devon Energy and had subsurface utilities located at the Site. On March 27, 2020, HRL mobilized to evaluate the release. Soil samples were collected at eight locations from the ground surface to approximately four inches below ground surface (bgs). To fully delineate the vertical extent of impacts, additional samples were collected from one location at six to eight inches bgs, 10 to 14 inches bgs, and 14 to 18 inches bgs. The samples were analyzed in the field (field screening) by one or more of the following methods:

- Chloride was approximated using an electrical conductivity (EC) meter in accordance with methods recommended by the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS)
- Non-specific volatile organic compounds (VOCs) were measured using a photoionization detector (PID) with a 10.6 electron-volt (eV) lamp
- Total petroleum hydrocarbons (TPH) was measured using a PetroFlag® field test kit in accordance with U.S. Environmental Protection Agency (EPA) Method 9074

Results indicated elevated concentrations of TPH and elevated electrical conductivity readings.

Based on the results of the field screening, on April 4, 2020, HRL collected soil samples from 11 locations (FS1 through FS11) from depths ranging from one-inch bgs to four inches bgs for laboratory analysis. To fully delineate the vertical extent of impacts, additional samples were collected from FS2 at 14 inches bgs and 22 inches bgs. Samples were immediately placed on ice and kept under strict chain of custody protocol prior to submission to Hall Environmental Analysis Laboratory, Inc. of Albuquerque, New Mexico (Attachment B) for analysis of:

- Chloride by United States Environmental Protection Agency (US EPA) Method 300.0
- Benzene, toluene, ethyl benzene, and total xylenes (BTEX) by US EPA Method 8021B
- Total petroleum hydrocarbons (TPH) – gasoline range organics (GRO), diesel range organics (DRO), and oil range organics (ORO) by US EPA Method 8015M

Samples FS1, FS6, and FS8 exceeded the NMOCD closure criteria for GRO plus DRO and/or TPH (Attachment B, Table 1); therefore, HRL mobilized to the Site on April 23, 2020 to collect additional samples to delineate the impacted area. Samples were collected from eight locations (Sample IDs 1 through 8) at depths ranging from two inches to three inches bgs. Additionally, samples were collected at depths of six inches, 18 inches, and 21 inches bgs from sample ID 4. Refusal was encountered at a depth of 21 inches bgs. Of these, samples 1, 5, 7, and 8 were submitted to Hall Environmental Analysis Laboratory, Inc. for the same parameters listed above. Results of these samples indicate that the horizontal delineation of impacted area remained undefined near sample IDs 1 and 8.

Due to refusal with the hand auger at 21 inches bgs in sample location 4 and field observations indicating that this soil was still impacted, HRL retained Kelley Oilfield Services to mobilize to the Site on May 11, 2020 with heavy equipment to delineate the vertical extent of impacts. One test pit was excavated, and samples were collected from ground surface, six feet bgs, and 11 feet bgs (FS-12-0', FS-12-6', and FS-12-11'). Refusal was not encountered with the track hoe.

The results for sample FS-12-0' exceeded the NMOCD closure criteria for TPH (Table 1). Therefore, HRL mobilized to the site on May 20, 2020 to collect three additional samples (SP-1 through SP-3) to delineate the horizontal extent of the impacted area.

Closure Criteria

Because the Site is in an area of high potential for karst topography, the closure criteria will be the values applicable for releases where depth to groundwater is less than 50 feet bgs.

Depth to Groundwater	Parameter	Closure Criteria in milligrams per kilogram (mg/kg)
Less than 50 feet below ground surface	Chloride	600 mg/kg or natural background, whichever is greater
	Total Petroleum Hydrocarbons (TPH) *[Gasoline Range Organics (GRO) + Diesel Range Organics (DRO) + Oil Range Organics (ORO)]*	100 mg/kg
	Benzene	10 mg/kg
	Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX)	50 mg/kg

Remediation Plan

A scaled diagram depicting the potentially impacted area and nearby significant features, such as roads, site infrastructure, location of borings, sample points, monitoring wells (if present), and subsurface features (if data was available) has been prepared (Figure 3). HRL utilized a Trimble GeoXT global positioning system (GPS) unit to collect latitude and longitude data for the sample locations (Figure 3). Based on evaluation of the laboratory results, the oil release impacted a surficial area of approximately 12,324 square-feet to a depth ranging between four inches and to less than 72 inches. Additionally, an area approximately 126 square-feet by approximately four inches bgs of chloride-impacted soil was also observed.

To achieve the NMOCD closure criteria listed above, HRL recommends remediation of both the oil-impacted soil and the chloride-impacted soil by excavation and off-site disposal at an NMOCD approved facility. The extent of soil to be excavated is based on laboratory results in addition to photographs of the release provided by the client (Attachment C, Photographs). Excavation oversight and subsequent collection of confirmatory soil samples in accordance with 19.15.29.12 NMAC should be conducted by a qualified environmental consulting firm. HRL estimates that approximately 1,369 cubic yards of oil-impacted soil and five cubic yards of chloride-impacted soil will be excavated.

Because the proposed excavated area is on a well pad or an area necessary to maintain production operations, it will be backfilled with caliche or similar clean backfill and compacted or otherwise stabilized to minimize dust and erosion.

HRL estimates that the remediation can be completed within 90 days of notice to proceed and the cost to complete this remediation is provided in Attachment D.

This cost estimate is based on the following assumptions:

- 1,374 yards of impacted soil will be removed and disposed of off-site
- Disposal fees are estimated to be $31 per yard, billed directly to Devon

- 100 confirmatory soil samples will be submitted for laboratory analysis of BTEX, TPH, and total chloride with standard turn-around time
- 1,374 yards of clean backfill will be placed back in the excavation after receipt of confirmatory soil sample results that are below applicable standards
- Excavation oversight and confirmatory soil sampling can be completed in nine field days
- Confirmation of backfilling activities can be completed in one field day
- Preparation and submission of a closure report to NMOCD

Scope and Limitations

The scope of HRL's services consists of performing site characterization and preparation of this site characterization report and remediation plan. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin.

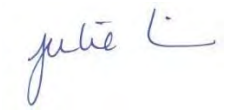
Conclusions

An area of soil approximately 12,324 square feet by approximately three feet deep has elevated concentrations of TPH and an area of soil approximately 126 square feet by approximately one foot deep has elevated concentrations of chloride. HRL recommends remediation by excavation and backfilling the impacted area with clean backfill.

We appreciate the opportunity to work with Devon on this project. If you have any questions or concerns, please do not hesitate to contact me at (970) 243-3271 or via email at jlinn@hrlcomp.com.

Sincerely,

HRL Compliance Solutions, Inc.



Julie Linn, PG, RG
Project Manager

Figures:

Figure 1: Site Location
Figure 2: Depth to Groundwater
Figure 3: Sample Location and Results

Tables:

Table 1: Soil Results Summary

Attachments:

Attachment A: NMOCD Form C-141
Attachment B: Laboratory Analytical Reports
Attachment C: Photographs
Attachment D: Devon Energy Remediation Cost Estimate

Figures

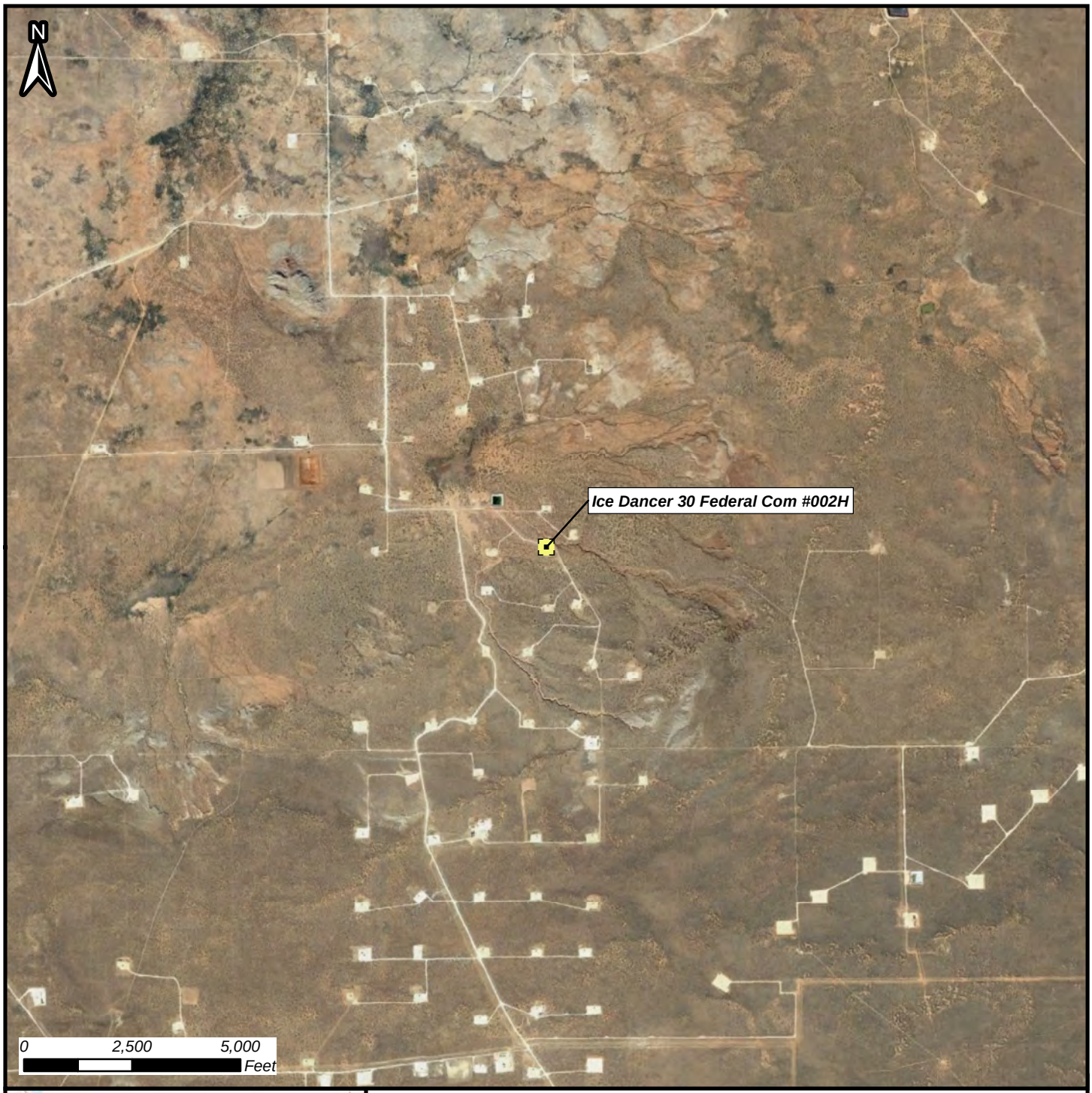


Figure 1: Site Location Map

Ice Dancer 30 Federal Com #002H
November 2018 Spill

32.269771082, -103.918919702
Section 31, Township 23 South, Range 30 East

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NOTES / COMMENTS:

Mapped Features

Facility Location

DISCLAIMER: This representation and the Geographic Information System (GIS) used to create it are designed as a source of reference and not intended to replace official records and/or legal surveys. HRL assumes no responsibility for any risks, dangers, or liabilities that may result from its use and makes no guarantees as to the quality or accuracy of the underlying data.

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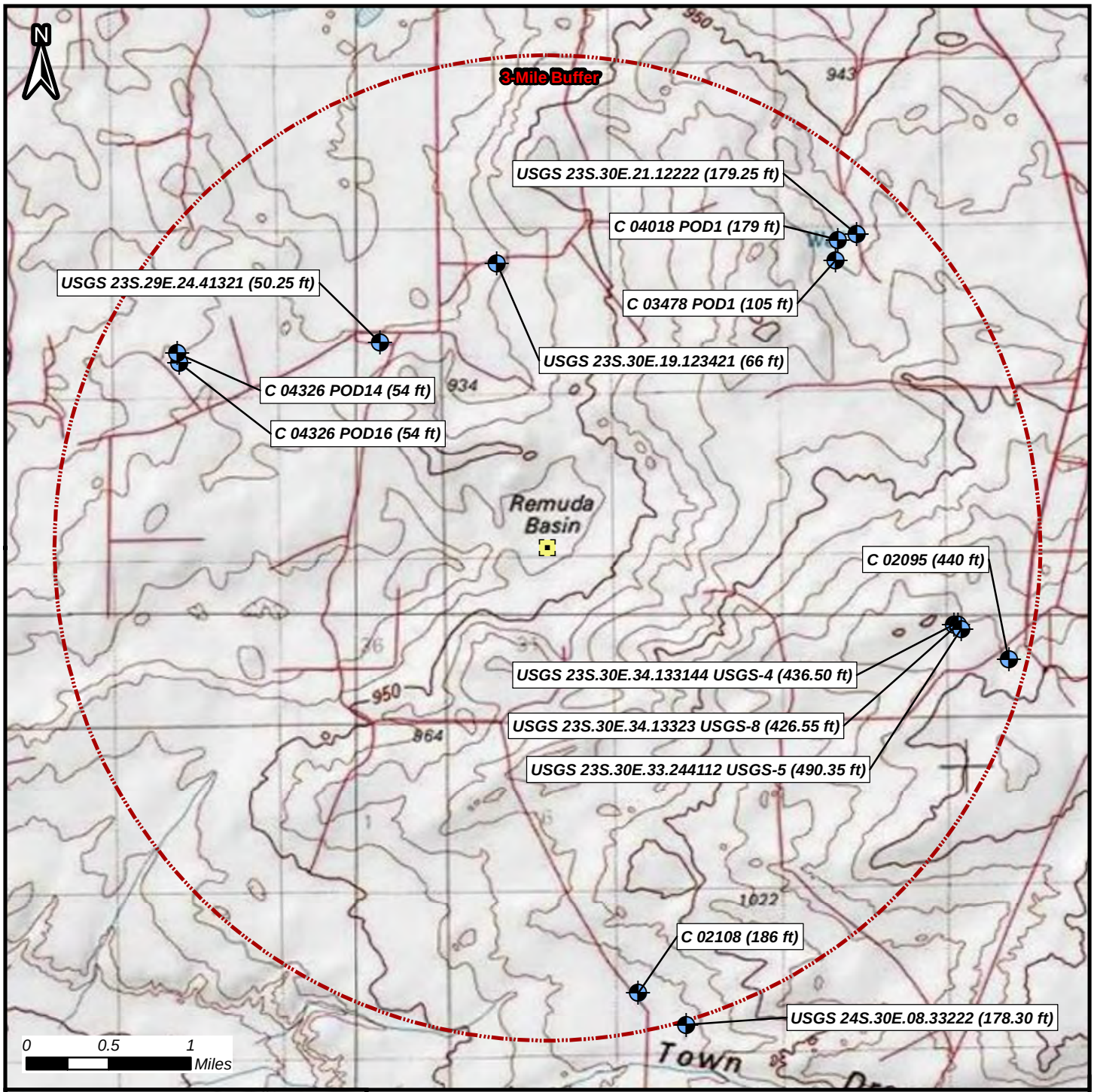
Author: A. Asay
Revision: 0
Date: 2/28/2020

T:\CLIENTS\DEVON ENERGY\2020\Ice Dancer 30 Federal Com #002H\Maps\Ice Dancer 30 Federal Com #002H Site Location Map (November 2018 Spill) 022820.mxd



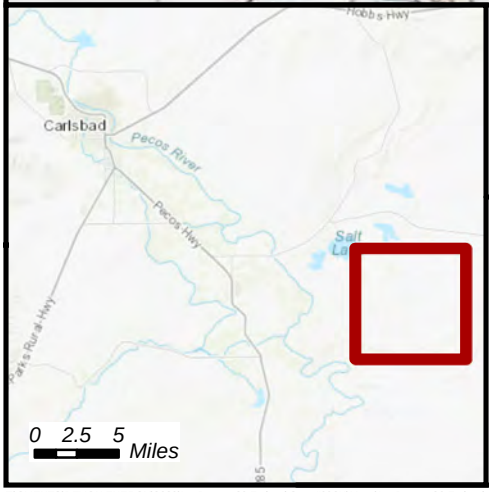


Figure 2: Depth to Groundwater Map

Ice Dancer 30 Federal Com #002H
November 2018 Spill

32.269771082, -103.918919702
Section 31, Township 23 South, Range 30 East

Well Number	Water Level Below Ground Surface (ft)	Distance from Source (mi)
C 03478 POD1	105.00	2.48
C 02095	440.00	2.89
C 02108	186.00	2.77
C 04018 POD1	179.00	2.58
C 04326 POD14	54.00	2.55
C 04326 POD16	54.00	2.51
USGS 23S.30E.19.123421	66.00	1.76
USGS 23S.29E.24.41321	50.25	1.61
USGS 23S.30E.21.12222	179.25	2.68
USGS 24S.30E.08.33222	178.30	3.02
USGS 23S.30E.34.133144 USGS-4	436.50	2.52
USGS 23S.30E.34.13323 USGS-8	426.55	2.54
USGS 23S.30E.33.244112 USGS-5	490.35	2.57

Mapped Features

- Point of Release
- Groundwater Monitoring Well
- 3-Mile Buffer

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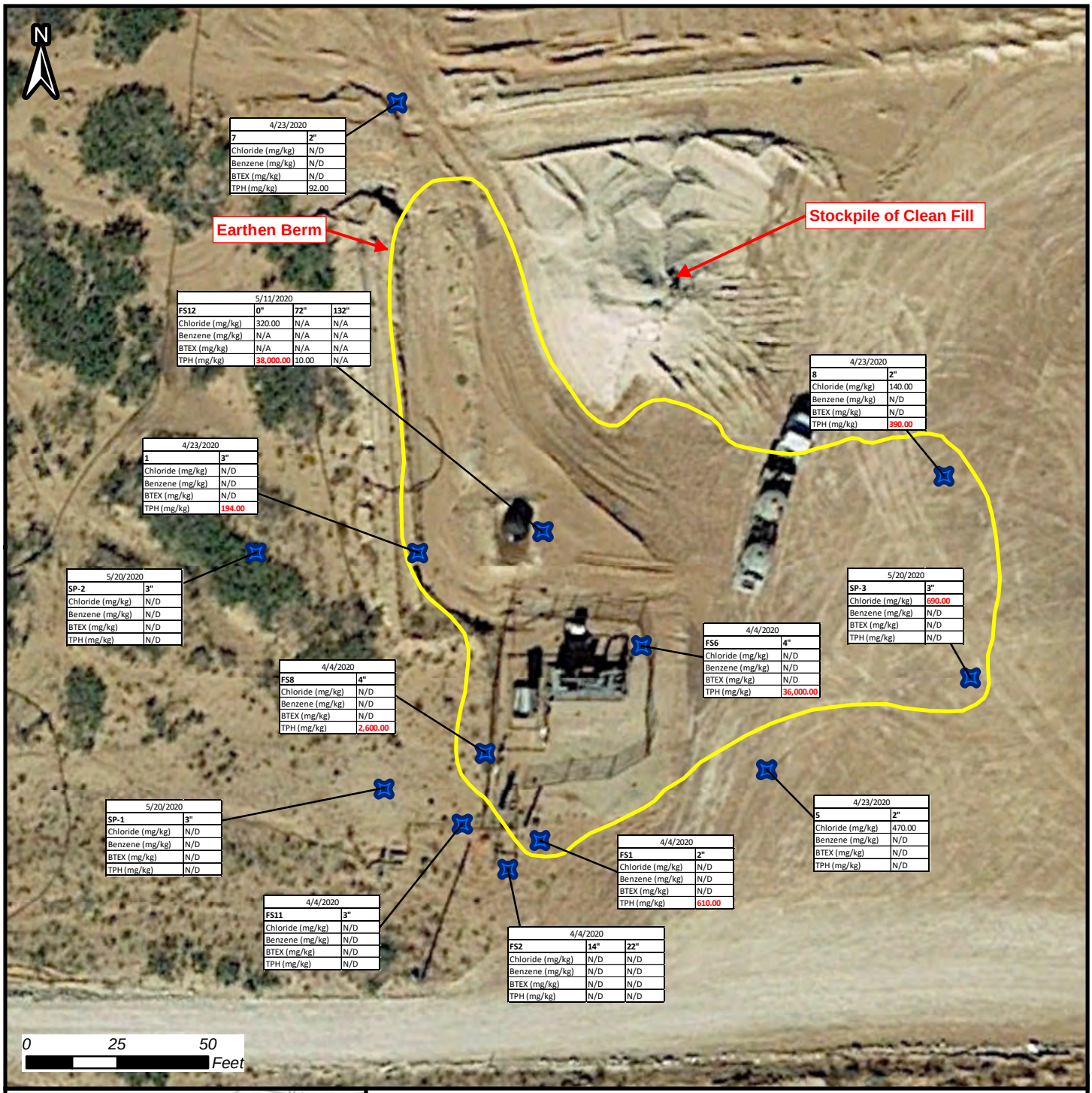
Author: A. Asay
Revision: 0
Date: 5/14/2020

T:\CLIENTS\DEVON ENERGY\2020\Ice Dancer 30 Federal Com #002H\Maps\Ice Dancer 30 Federal Com #002H DTGW Map (November 2018 Spill) 051420.mxd



4/23/2020	
7	2"
Chloride (mg/kg)	N/D
Benzene (mg/kg)	N/D
BTEX (mg/kg)	N/D
TPH (mg/kg)	92.00

5/11/2020			
FS12	0"	72"	132"
Chloride (mg/kg)	320.00	N/A	N/A
Benzene (mg/kg)	N/A	N/A	N/A
BTEX (mg/kg)	N/A	N/A	N/A
TPH (mg/kg)	38,000.00	10.00	N/A

4/23/2020	
8	2"
Chloride (mg/kg)	140.00
Benzene (mg/kg)	N/D
BTEX (mg/kg)	N/D
TPH (mg/kg)	390.00

4/23/2020	
1	3"
Chloride (mg/kg)	N/D
Benzene (mg/kg)	N/D
BTEX (mg/kg)	N/D
TPH (mg/kg)	194.00

5/20/2020	
SP-2	3"
Chloride (mg/kg)	N/D
Benzene (mg/kg)	N/D
BTEX (mg/kg)	N/D
TPH (mg/kg)	N/D

5/20/2020	
SP-3	3"
Chloride (mg/kg)	690.00
Benzene (mg/kg)	N/D
BTEX (mg/kg)	N/D
TPH (mg/kg)	N/D

4/4/2020	
FS6	4"
Chloride (mg/kg)	N/D
Benzene (mg/kg)	N/D
BTEX (mg/kg)	N/D
TPH (mg/kg)	36,000.00

4/4/2020	
FS8	4"
Chloride (mg/kg)	N/D
Benzene (mg/kg)	N/D
BTEX (mg/kg)	N/D
TPH (mg/kg)	2,600.00

5/20/2020	
SP-1	3"
Chloride (mg/kg)	N/D
Benzene (mg/kg)	N/D
BTEX (mg/kg)	N/D
TPH (mg/kg)	N/D

4/23/2020	
5	2"
Chloride (mg/kg)	470.00
Benzene (mg/kg)	N/D
BTEX (mg/kg)	N/D
TPH (mg/kg)	N/D

4/4/2020	
FS1	2"
Chloride (mg/kg)	N/D
Benzene (mg/kg)	N/D
BTEX (mg/kg)	N/D
TPH (mg/kg)	610.00

4/4/2020	
FS11	3"
Chloride (mg/kg)	N/D
Benzene (mg/kg)	N/D
BTEX (mg/kg)	N/D
TPH (mg/kg)	N/D

4/4/2020		
FS2	14"	22"
Chloride (mg/kg)	N/D	N/D
Benzene (mg/kg)	N/D	N/D
BTEX (mg/kg)	N/D	N/D
TPH (mg/kg)	N/D	N/D

devon

Figure 3: Sample Location and Results Map

Ice Dancer 30 Federal Com #002H

November 2018 Spill

32.269771082, -103.918919702

Section 31, Township 23 South, Range 30 East

NOTES / COMMENTS:

The impacted area is approximately 16,489 square feet.

Results in red exceed closure criteria.

Mapped Features

- Sample Location (Submitted for Lab Analysis)
- Impacted Area

HRL COMPLIANCE SOLUTIONS

Author: A. Asay

Revision: 0

Date: 6/9/2020

T:\CLIENTS\DEVON ENERGY\2020\Ice Dancer 30 Federal Com #002H\Maps\Ice Dancer 30 Federal Com #002H Sample Location and Results Map (November 2018 Spill) 060920.mxd

Tables

HRL COMPLIANCE SOLUTIONS

Table 1
Soil Sample Results
Devon Energy
Ice Dancer 30 Federal Com #002H (November 2018)
Eddy County, New Mexico

Sample ID	Depth (inches)	Sample Date	Chloride	Benzene	BTEX	TPH
			Values are in milligrams per kilogram (mg/kg)			
NMOCD Closure Criteria (Groundwater less than 50 feet) *			600	10	50	100
FS1	2	4/4/2020	ND	ND	ND	**610**
FS2.3	14	4/4/2020	ND	ND	ND	ND
FS2.4	22	4/4/2020	ND	ND	ND	ND
FS6	4	4/4/2020	ND	ND	ND	**36,000**
FS8	4	4/4/2020	ND	ND	ND	**2,600**
FS11	3	4/4/2020	ND	ND	ND	ND
1	3	4/23/2020	ND	ND	ND	**194**
5	2	4/23/2020	470	ND	ND	ND
7	2	4/23/2020	ND	ND	ND	92
8	2	4/23/2020	140	ND	ND	**390**
FS-12-0'	0	5/11/2020	320	ND	ND	**38,000**
FS-12-6'	72	5/11/2020	ND	ND	ND	10
FS-12-11'	132	5/11/2020	ND	ND	ND	ND
SP-1	3	5/20/2020	ND	ND	ND	ND
SP-2	3	5/20/2020	ND	ND	ND	ND
SP-3	3	5/20/2020	**690**	ND	ND	ND

Notes:

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, Total Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

TPH: Total Petroleum Hydrocarbons

Bold results exceed closure criteria

* Closure Criteria specified in 19.15.29.12 NMAC

Attachment A

NMOCD Form C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # *(assigned by OCD)*
Contact mailing address	

Location of Release Source

Latitude _____ Longitude _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# *(if applicable)*

Unit Letter	Section	Township	Range	County

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)
Cause of Release		

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

- ☐ The source of the release has been stopped.
- ☐ The impacted area has been secured to protect human health and the environment.
- ☐ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ☐ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____ Title: _____

Signature: Kendra DeHoyos Date: _____

email: _____ Telephone: _____

OCD Only

Received by: Amalia Barrameda Date: _____

From: Bratcher, Mike, EMNRD
To: Bustamante, Amalia, EMNRD
Subject: FW: [EXTERNAL] RE: Ice Dancer 30 Fed Com 2H - Spill 11/1/18
Date: Tuesday, December 4, 2018 8:20:51 AM
Attachments: image002.png
Ice Dancer 30 Federal Com 2H_30.151 BBLS Oil_C-141_11.2.2018.pdf

Amalia – I'm not sure what the change is. Maria had calculated this release to be 360 bbls, but I get pretty close to what they have listed when I do the calculation.

Thanks - MB

From: Davis, Amanda <Amanda.Davis@dvn.com>
Sent: Monday, December 3, 2018 8:47 PM
To: Pruett, Maria, EMNRD <Maria.Pruett@state.nm.us>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; stucker@blm.gov
Cc: Fulks, Brett <Brett.Fulks@dvn.com>; DeHoyos, Kendra <Kendra.DeHoyos@dvn.com>
Subject: [EXT] RE: [EXTERNAL] RE: Ice Dancer 30 Fed Com 2H - Spill 11/1/18

Ms. Purett,

Thank you for catching the error in our C-141. I have attached a corrected C-141 with the appropriate unit notation. If you have additional questions or concerns please feel free to contact me.

Thank you,

Amanda T. Davis
Environmental Representative

Devon Energy Corporation
6488 Seven Rivers Highway
Artesia, New Mexico 88210
(575) 748-0176 Direct
(505) 350-1336 Mobile

devon

From: Pruett, Maria, EMNRD [mailto:Maria.Pruett@state.nm.us]
Sent: Friday, November 30, 2018 2:41 PM

To: DeHoyos, Kendra <Kendra.DeHoyos@dvn.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; stucker@blm.gov
Cc: Davis, Amanda <Amanda.Davis@dvn.com>; Fulks, Brett <Brett.Fulks@dvn.com>
Subject: RE: [EXTERNAL] RE: Ice Dancer 30 Fed Com 2H - Spill 11/1/18

Hello Ms. DeHoyos,

Using the numbers provided, OCD estimates a spill volume of 360 bbls. Would you like us to adjust the volume on the sheet?

Best Regards,

Maria Pruett

Environmental Specialist
N.M. Oil Conservation Division
District 2
811 S. 1st Street
Artesia, NM 88210
Desk: 575 748-1283 X 101
Cell: 575 840-5963
Fax: 575748-9720

From: DeHoyos, Kendra <Kendra.DeHoyos@dvn.com>
Sent: Thursday, November 29, 2018 4:18 PM
To: Pruett, Maria, EMNRD <Maria.Pruett@state.nm.us>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; stucker@blm.gov
Cc: Davis, Amanda <Amanda.Davis@dvn.com>; Fulks, Brett <Brett.Fulks@dvn.com>
Subject: [EXT] RE: [EXTERNAL] RE: Ice Dancer 30 Fed Com 2H - Spill 11/1/18

Attached is the corrected C-141.

Thank you,

Kendra DeHoyos

EHS Associate
Devon Energy Corporation
PO Box 250
Artesia, NM 88211

devon

Devon - Internal

From: Pruett, Maria, EMNRD <Maria.Pruett@state.nm.us>
Sent: Wednesday, November 21, 2018 12:01 PM
To: DeHoyos, Kendra <Kendra.DeHoyos@dvn.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; stucker@blm.gov
Cc: Davis, Amanda <Amanda.Davis@dvn.com>; Fulks, Brett <Brett.Fulks@dvn.com>
Subject: [EXTERNAL] RE: Ice Dancer 30 Fed Com 2H - Spill 11/1/18

Hello Ms. DeHoyos,

Thank you for the C-141 form. Please send the spill calculations so we can process this permit. Let me know if you have any questions. Please also note, the other attachment is a Google Earth view of the site and not a GPS photo of the spill.

Best Regards,

Maria Pruett

Environmental Specialist
N.M. Oil Conservation Division
District 2
811 S. 1st Street
Artesia, NM 88210
Desk: 575 748-1283 X 101
Cell: 575 840-5963
Fax: 575748-9720

From: DeHoyos, Kendra <Kendra.DeHoyos@dvn.com>
Sent: Wednesday, November 21, 2018 9:33 AM
To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Pruett, Maria, EMNRD <Maria.Pruett@state.nm.us>; stucker@blm.gov
Cc: Davis, Amanda <Amanda.Davis@dvn.com>; Fulks, Brett <Brett.Fulks@dvn.com>
Subject: [EXT] Ice Dancer 30 Fed Com 2H - Spill 11/1/18

Good Morning,

Please see the attached initial C-141 and GIS picture of the spill that occurred at the Ice Dancer 30 Fed Com 2H on 11/1/18.

Thank you,

Kendra DeHoyos
EHS Associate
Devon Energy Corporation
PO Box 250
Artesia, NM 88211

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	nAB1834553041
District RP	2RP-5099
Facility ID	
Application ID	pAB1834552680

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	>100 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
☒ Field data
☒ Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
☒ Boring or excavation logs
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
☒ Laboratory data including chain of custody

State of New Mexico
Oil Conservation Division

Incident ID	nAB1834553041
District RP	2RP-5099
Facility ID	
Application ID	pAB1834552680

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Tom Bynum Title: EHS Consultant

Signature: Tom Bynum Date: 7/9/2020

email: tom.bynum@dvn.com Telephone: 575-748-0176

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAB1834553041
District RP	2RP-5099
Facility ID	
Application ID	pAB1834552680

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

☒ Detailed description of proposed remediation technique
☒ Scaled sitemap with GPS coordinates showing delineation points
☒ Estimated volume of material to be remediated
☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☐ Extents of contamination must be fully delineated.

☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Tom Bynum Title: EHS Consultant

Signature: Tom Bynum Date: 7/9/2020

email: tom.bynum@dvn.com Telephone: 575-748-0176

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

Attachment B

Laboratory Analytical Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 13, 2020

Tom Bynum

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (575) 748-0176
FAX:

RE: Ice Dancer 30 Fed Com 2H November 2018 OrderNo.: 2004254

Dear Tom Bynum:

Hall Environmental Analysis Laboratory received 6 sample(s) on 4/7/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2004254**
Date Reported: **4/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: FS1
Project: Ice Dancer 30 Fed Com 2H November 20
Collection Date: 4/4/2020 10:17:00 AM
Lab ID: 2004254-001 **Matrix:** SOIL
Received Date: 4/7/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	220	9.8		mg/Kg	1	4/9/2020 9:49:42 AM
Motor Oil Range Organics (MRO)	390	49		mg/Kg	1	4/9/2020 9:49:42 AM
Surr: DNOP	101	55.1-146		%Rec	1	4/9/2020 9:49:42 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/9/2020 9:23:54 PM
Surr: BFB	98.1	66.6-105		%Rec	1	4/9/2020 9:23:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	4/9/2020 9:23:54 PM
Toluene	ND	0.049		mg/Kg	1	4/9/2020 9:23:54 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/9/2020 9:23:54 PM
Xylenes, Total	ND	0.097		mg/Kg	1	4/9/2020 9:23:54 PM
Surr: 4-Bromofluorobenzene	99.2	80-120		%Rec	1	4/9/2020 9:23:54 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	4/10/2020 12:10:02 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004254**
Date Reported: **4/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy **Client Sample ID:** FS2.3
Project: Ice Dancer 30 Fed Com 2H November 20 **Collection Date:** 4/4/2020 10:30:00 AM
Lab ID: 2004254-002 **Matrix:** SOIL **Received Date:** 4/7/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/9/2020 10:14:10 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/9/2020 10:14:10 AM
Surr: DNOP	97.5	55.1-146		%Rec	1	4/9/2020 10:14:10 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/9/2020 9:47:27 PM
Surr: BFB	99.4	66.6-105		%Rec	1	4/9/2020 9:47:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	4/9/2020 9:47:27 PM
Toluene	ND	0.048		mg/Kg	1	4/9/2020 9:47:27 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/9/2020 9:47:27 PM
Xylenes, Total	ND	0.097		mg/Kg	1	4/9/2020 9:47:27 PM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	4/9/2020 9:47:27 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	4/10/2020 12:47:06 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2004254**
Date Reported: **4/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: FS2.4
Project: Ice Dancer 30 Fed Com 2H November 20
Collection Date: 4/4/2020 10:35:00 AM
Lab ID: 2004254-003 **Matrix:** SOIL
Received Date: 4/7/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	4/9/2020 10:38:45 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/9/2020 10:38:45 AM
Surr: DNOP	87.9	55.1-146		%Rec	1	4/9/2020 10:38:45 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/9/2020 10:11:02 PM
Surr: BFB	99.3	66.6-105		%Rec	1	4/9/2020 10:11:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	4/9/2020 10:11:02 PM
Toluene	ND	0.049		mg/Kg	1	4/9/2020 10:11:02 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/9/2020 10:11:02 PM
Xylenes, Total	ND	0.098		mg/Kg	1	4/9/2020 10:11:02 PM
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	4/9/2020 10:11:02 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	4/10/2020 12:59:27 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2004254**
Date Reported: **4/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: FS6
Project: Ice Dancer 30 Fed Com 2H November 20
Collection Date: 4/4/2020 11:20:00 AM
Lab ID: 2004254-004 **Matrix:** SOIL
Received Date: 4/7/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	24000	980		mg/Kg	100	4/11/2020 12:54:18 AM
Motor Oil Range Organics (MRO)	12000	4900		mg/Kg	100	4/11/2020 12:54:18 AM
Surr: DNOP	0	55.1-146	S	%Rec	100	4/11/2020 12:54:18 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/9/2020 10:34:51 PM
Surr: BFB	99.1	66.6-105		%Rec	1	4/9/2020 10:34:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	4/9/2020 10:34:51 PM
Toluene	ND	0.049		mg/Kg	1	4/9/2020 10:34:51 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/9/2020 10:34:51 PM
Xylenes, Total	ND	0.097		mg/Kg	1	4/9/2020 10:34:51 PM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	4/9/2020 10:34:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	4/10/2020 1:11:49 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004254**
Date Reported: **4/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy **Client Sample ID:** FS8
Project: Ice Dancer 30 Fed Com 2H November 20 **Collection Date:** 4/4/2020 11:33:00 AM
Lab ID: 2004254-005 **Matrix:** SOIL **Received Date:** 4/7/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	1600	95		mg/Kg	10	4/9/2020 11:58:00 AM
Motor Oil Range Organics (MRO)	1000	480		mg/Kg	10	4/9/2020 11:58:00 AM
Surr: DNOP	0	55.1-146	S	%Rec	10	4/9/2020 11:58:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/10/2020 11:41:42 AM
Surr: BFB	94.0	66.6-105		%Rec	1	4/10/2020 11:41:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	4/10/2020 11:41:42 AM
Toluene	ND	0.048		mg/Kg	1	4/10/2020 11:41:42 AM
Ethylbenzene	ND	0.048		mg/Kg	1	4/10/2020 11:41:42 AM
Xylenes, Total	ND	0.095		mg/Kg	1	4/10/2020 11:41:42 AM
Surr: 4-Bromofluorobenzene	96.2	80-120		%Rec	1	4/10/2020 11:41:42 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	4/10/2020 1:48:51 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2004254**
Date Reported: **4/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy **Client Sample ID:** FS11
Project: Ice Dancer 30 Fed Com 2H November 20 **Collection Date:** 4/4/2020 1:41:00 PM
Lab ID: 2004254-006 **Matrix:** SOIL **Received Date:** 4/7/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	4/9/2020 12:22:27 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/9/2020 12:22:27 PM
Surr: DNOP	86.4	55.1-146		%Rec	1	4/9/2020 12:22:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/10/2020 12:05:33 PM
Surr: BFB	94.6	66.6-105		%Rec	1	4/10/2020 12:05:33 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	4/10/2020 12:05:33 PM
Toluene	ND	0.047		mg/Kg	1	4/10/2020 12:05:33 PM
Ethylbenzene	ND	0.047		mg/Kg	1	4/10/2020 12:05:33 PM
Xylenes, Total	ND	0.094		mg/Kg	1	4/10/2020 12:05:33 PM
Surr: 4-Bromofluorobenzene	97.1	80-120		%Rec	1	4/10/2020 12:05:33 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	4/10/2020 2:01:12 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004254**

13-Apr-20

Client: Devon Energy

Project: Ice Dancer 30 Fed Com 2H November 2018

Sample ID: **MB-51707** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **51707** RunNo: **68013**

Prep Date: **4/10/2020** Analysis Date: **4/10/2020** SeqNo: **2351082** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-51707** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **51707** RunNo: **68013**

Prep Date: **4/10/2020** Analysis Date: **4/10/2020** SeqNo: **2351083** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004254**

13-Apr-20

Client: Devon Energy

Project: Ice Dancer 30 Fed Com 2H November 2018

Sample ID: **LCS-51634** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **51634** RunNo: **67900**

Prep Date: **4/7/2020** Analysis Date: **4/9/2020** SeqNo: **2348958** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.4	70	130			
Surr: DNOP	3.7		5.000		74.0	55.1	146			

Sample ID: **MB-51634** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **51634** RunNo: **67900**

Prep Date: **4/7/2020** Analysis Date: **4/9/2020** SeqNo: **2348959** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.5		10.00		84.9	55.1	146			

Sample ID: **LCS-51667** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **51667** RunNo: **68031**

Prep Date: **4/8/2020** Analysis Date: **4/10/2020** SeqNo: **2350865** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.0		5.000		101	55.1	146			

Sample ID: **MB-51667** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **51667** RunNo: **68031**

Prep Date: **4/8/2020** Analysis Date: **4/10/2020** SeqNo: **2350866** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		105	55.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004254**

13-Apr-20

Client: Devon Energy

Project: Ice Dancer 30 Fed Com 2H November 2018

Sample ID: **lcs-51628** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **LCSS** Batch ID: **51628** RunNo: **68006**

Prep Date: **4/7/2020** Analysis Date: **4/9/2020** SeqNo: **2350206** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	95.3	80	120			
Surr: BFB	1100		1000		108	66.6	105			S

Sample ID: **mb-51628** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **PBS** Batch ID: **51628** RunNo: **68006**

Prep Date: **4/7/2020** Analysis Date: **4/9/2020** SeqNo: **2350208** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		97.0	66.6	105			

Sample ID: **lcs-51654** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **LCSS** Batch ID: **51654** RunNo: **68015**

Prep Date: **4/8/2020** Analysis Date: **4/10/2020** SeqNo: **2350912** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		107	66.6	105			S

Sample ID: **mb-51654** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **PBS** Batch ID: **51654** RunNo: **68015**

Prep Date: **4/8/2020** Analysis Date: **4/10/2020** SeqNo: **2350914** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	960		1000		96.1	66.6	105			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004254**

13-Apr-20

Client: Devon Energy

Project: Ice Dancer 30 Fed Com 2H November 2018

Sample ID: **LCS-51628** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **51628** RunNo: **68006**

Prep Date: **4/7/2020** Analysis Date: **4/9/2020** SeqNo: **2350255** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.025	1.000	0	87.6	80	120			
Toluene	0.91	0.050	1.000	0	91.1	80	120			
Ethylbenzene	0.94	0.050	1.000	0	94.1	80	120			
Xylenes, Total	2.8	0.10	3.000	0	94.5	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID: **mb-51628** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **51628** RunNo: **68006**

Prep Date: **4/7/2020** Analysis Date: **4/9/2020** SeqNo: **2350257** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.99		1.000		99.2	80	120			

Sample ID: **LCS-51654** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **51654** RunNo: **68015**

Prep Date: **4/8/2020** Analysis Date: **4/10/2020** SeqNo: **2350959** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID: **mb-51654** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **51654** RunNo: **68015**

Prep Date: **4/8/2020** Analysis Date: **4/10/2020** SeqNo: **2350961** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.99		1.000		98.8	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **DEVON ENERGY** Work Order Number: **2004254** RcptNo: **1**

Received By: **Juan Rojas** **4/7/2020 8:25:00 AM** Juan Rojas

Completed By: **Leah Baca** **4/7/2020 9:54:23 AM** Leah Baca

Reviewed By: LB 4/7/20

Chain of Custody

1. Is Chain of Custody sufficiently complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Client		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: (<2 or >12 unless noted)

Adjusted?

Checked by: DAD 4/7/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.5	Good				
2	2.5	Good				

Chain-of-Custody Record

Client: Devon Energy

Tom Bynum

Mailing Address: 6488 Seven Rivers Highway

Artesia, New Mexico 88211

Phone #: 580-748-1613

email or Fax#: tom.bynum@dvn.com

QA/QC Package:

☑ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 day Turn

☑ Standard ☐ Rush

Project Name: Ice Dancer 30 Fed Com 2H (November 2018)

Project #: 20715693

Project Manager: Tom Bynum

Sampler: Annie McCawley (HRL)

On Ice: ☑ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 1.6-0.1=1.5 (°C) 2.6-0.1=2.5

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2004254	(BTEX) MTBE / TMB's (8021)	TPH 8015M (GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4/4/20	10:17	Soil	FS1	4oz Glass	Ice	-001	X	X					X			
4/4/20	10:30	Soil	FS 2.3	4oz Glass	Ice	-002	X	X					X			
4/4/20	10:35	Soil	FS 2.4	4oz Glass	Ice	-003	X	X					X			
4/4/20	11:20	Soil	FS6	4oz Glass	Ice	-004	X	X					X			
4/4/20	11:33	Soil	FS8	4oz Glass	Ice	-005	X	X					X			
4/4/20	13:41	Soil	FS11	4oz Glass	Ice	-006	X	X					X			

Date	Time	Relinquished by	Received by	Via	Date	Time
4/6/20	1330	Taylor Ellwell			4/6/20	1330
4/6/20	1900			courier	4/7/20	8:20

Remarks: Please also send report to Annie McCawley and Julie Linn at:
AMcCawley@HRLcomp.com
JLinn@HRLcomp.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 04, 2020

Tom Bynum

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (505) 350-1336
FAX:

RE: Ice Dancer 2018 OrderNo.: 2004B03

Dear Tom Bynum:

Hall Environmental Analysis Laboratory received 4 sample(s) on 4/25/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2004B03**
Date Reported: **5/4/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Ice Dancer 2018
Lab ID: 2004B03-001 **Matrix:** SOIL

Client Sample ID: 1
Collection Date: 4/23/2020 2:51:00 PM
Received Date: 4/25/2020 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	ND	60		mg/Kg	20	4/30/2020 1:01:59 AM	52150
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	84	9.4		mg/Kg	1	4/28/2020 10:20:33 PM	52109
Motor Oil Range Organics (MRO)	110	47		mg/Kg	1	4/28/2020 10:20:33 PM	52109
Surr: DNOP	95.8	55.1-146		%Rec	1	4/28/2020 10:20:33 PM	52109
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/28/2020 1:13:23 PM	52090
Surr: BFB	102	66.6-105		%Rec	1	4/28/2020 1:13:23 PM	52090
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	4/28/2020 1:13:23 PM	52090
Toluene	ND	0.050		mg/Kg	1	4/28/2020 1:13:23 PM	52090
Ethylbenzene	ND	0.050		mg/Kg	1	4/28/2020 1:13:23 PM	52090
Xylenes, Total	ND	0.10		mg/Kg	1	4/28/2020 1:13:23 PM	52090
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	4/28/2020 1:13:23 PM	52090

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004B03**
Date Reported: **5/4/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Ice Dancer 2018
Lab ID: 2004B03-002 **Matrix:** SOIL

Client Sample ID: 5
Collection Date: 4/23/2020 3:31:00 PM
Received Date: 4/25/2020 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	470	60		mg/Kg	20	4/29/2020 10:43:56 AM	52154
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	4/28/2020 10:44:48 PM	52109
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	4/28/2020 10:44:48 PM	52109
Surr: DNOP	68.8	55.1-146		%Rec	1	4/28/2020 10:44:48 PM	52109
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/28/2020 1:37:00 PM	52090
Surr: BFB	101	66.6-105		%Rec	1	4/28/2020 1:37:00 PM	52090
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	4/28/2020 1:37:00 PM	52090
Toluene	ND	0.049		mg/Kg	1	4/28/2020 1:37:00 PM	52090
Ethylbenzene	ND	0.049		mg/Kg	1	4/28/2020 1:37:00 PM	52090
Xylenes, Total	ND	0.098		mg/Kg	1	4/28/2020 1:37:00 PM	52090
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	4/28/2020 1:37:00 PM	52090

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004B03**
Date Reported: **5/4/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Ice Dancer 2018
Lab ID: 2004B03-003 **Matrix:** SOIL

Client Sample ID: 7
Collection Date: 4/23/2020 5:27:00 PM
Received Date: 4/25/2020 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	4/29/2020 11:21:11 AM	52154
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	41	9.5		mg/Kg	1	4/28/2020 11:09:05 PM	52109
Motor Oil Range Organics (MRO)	51	47		mg/Kg	1	4/28/2020 11:09:05 PM	52109
Surr: DNOP	85.1	55.1-146		%Rec	1	4/28/2020 11:09:05 PM	52109
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/28/2020 2:00:27 PM	52090
Surr: BFB	103	66.6-105		%Rec	1	4/28/2020 2:00:27 PM	52090
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	4/28/2020 2:00:27 PM	52090
Toluene	ND	0.049		mg/Kg	1	4/28/2020 2:00:27 PM	52090
Ethylbenzene	ND	0.049		mg/Kg	1	4/28/2020 2:00:27 PM	52090
Xylenes, Total	ND	0.098		mg/Kg	1	4/28/2020 2:00:27 PM	52090
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	4/28/2020 2:00:27 PM	52090

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004B03**
Date Reported: **5/4/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: 8
Project: Ice Dancer 2018
Collection Date: 4/23/2020 6:18:00 PM
Lab ID: 2004B03-004 **Matrix:** SOIL **Received Date:** 4/25/2020 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	140	60		mg/Kg	20	4/29/2020 3:18:43 PM	52154
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	150	9.7		mg/Kg	1	4/28/2020 11:33:43 PM	52109
Motor Oil Range Organics (MRO)	240	48		mg/Kg	1	4/28/2020 11:33:43 PM	52109
Surr: DNOP	83.1	55.1-146		%Rec	1	4/28/2020 11:33:43 PM	52109
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/28/2020 2:24:02 PM	52090
Surr: BFB	99.9	66.6-105		%Rec	1	4/28/2020 2:24:02 PM	52090
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	4/28/2020 2:24:02 PM	52090
Toluene	ND	0.050		mg/Kg	1	4/28/2020 2:24:02 PM	52090
Ethylbenzene	ND	0.050		mg/Kg	1	4/28/2020 2:24:02 PM	52090
Xylenes, Total	ND	0.10		mg/Kg	1	4/28/2020 2:24:02 PM	52090
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	4/28/2020 2:24:02 PM	52090

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004B03**

04-May-20

Client: Devon Energy

Project: Ice Dancer 2018

Sample ID: **MB-52154** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **52154** RunNo: **68503**

Prep Date: **4/29/2020** Analysis Date: **4/29/2020** SeqNo: **2371575** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52154** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **52154** RunNo: **68503**

Prep Date: **4/29/2020** Analysis Date: **4/29/2020** SeqNo: **2371576** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.8	90	110			

Sample ID: **MB-52150** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **52150** RunNo: **68544**

Prep Date: **4/29/2020** Analysis Date: **4/29/2020** SeqNo: **2371631** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52150** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **52150** RunNo: **68544**

Prep Date: **4/29/2020** Analysis Date: **4/29/2020** SeqNo: **2371632** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004B03**

04-May-20

Client: Devon Energy

Project: Ice Dancer 2018

Sample ID: **LCS-52108**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **52108**	RunNo: **68466**							
Prep Date: **4/27/2020**	Analysis Date: **4/28/2020**	SeqNo: **2369166**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.1		5.000		101	55.1	146			

Sample ID: **MB-52108**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **52108**	RunNo: **68466**							
Prep Date: **4/27/2020**	Analysis Date: **4/28/2020**	SeqNo: **2369167**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		99.8	55.1	146			

Sample ID: **LCS-52109**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **52109**	RunNo: **68466**							
Prep Date: **4/27/2020**	Analysis Date: **4/28/2020**	SeqNo: **2369963**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	102	70	130			
Surr: DNOP	3.1		5.000		62.8	55.1	146			

Sample ID: **MB-52109**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **52109**	RunNo: **68466**							
Prep Date: **4/27/2020**	Analysis Date: **4/28/2020**	SeqNo: **2369964**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	6.6		10.00		66.4	55.1	146			

Sample ID: **LCS-52153**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **52153**	RunNo: **68504**							
Prep Date: **4/29/2020**	Analysis Date: **4/29/2020**	SeqNo: **2370383**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.4		5.000		88.3	55.1	146			

Sample ID: **MB-52153**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **52153**	RunNo: **68504**							
Prep Date: **4/29/2020**	Analysis Date: **4/29/2020**	SeqNo: **2370384**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.8		10.00		97.7	55.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004B03**

04-May-20

Client: Devon Energy

Project: Ice Dancer 2018

Sample ID: **mb-52090**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **52090**	RunNo: **68490**
Prep Date: **4/26/2020**	Analysis Date: **4/28/2020**	SeqNo: **2369829** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		103	66.6	105			

Sample ID: **lcs-52090**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **52090**	RunNo: **68490**
Prep Date: **4/26/2020**	Analysis Date: **4/28/2020**	SeqNo: **2369834** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.1	80	120			
Surr: BFB	1100		1000		111	66.6	105			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004B03**

04-May-20

Client: Devon Energy

Project: Ice Dancer 2018

Sample ID: **mb-52090** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **52090** RunNo: **68490**

Prep Date: **4/26/2020** Analysis Date: **4/28/2020** SeqNo: **2369873** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID: **LCS-52090** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **52090** RunNo: **68490**

Prep Date: **4/26/2020** Analysis Date: **4/28/2020** SeqNo: **2369874** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.83	0.025	1.000	0	82.6	80	120			
Toluene	0.86	0.050	1.000	0	85.8	80	120			
Ethylbenzene	0.89	0.050	1.000	0	88.7	80	120			
Xylenes, Total	2.7	0.10	3.000	0	89.2	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **DEVON ENERGY** Work Order Number: **2004B03** RcptNo: **1**

Received By: **Desiree Dominguez** **4/25/2020 9:20:00 AM** DD

Completed By: **Desiree Dominguez** **4/25/2020 10:12:31 AM** DD

Reviewed By: DR 4/25/20

Chain of Custody

1. Is Chain of Custody sufficiently complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: DAD 4/25/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.9	Good	Not Present			

Chain-of-Custody Record

Client: Devon Energy
Tom Bynum
Mailing Address: 6488 Seven Rivers Highway
Artesia, New Mexico 88211
Phone #: 580-748-1613
email or Fax#: tom.bynum@dvn.com
QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: Ice Dancer 2018
Project #: 20715693
Project Manager: Tom Bynum
Sampler: Annie McCawley HRL
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 3.6 +0.3 = 3.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2004B03	BTEX / MTBE / TMB's (8021)	TPH: 8015D GRO / DRO / MRO	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4/23/20	14:51		1	4oz Glass	Ice	-001	X	X					X			
			~~4-6~~ AM 4/24/20													
4/23/20	15:31		5	4oz Glass	Ice	-002	X	X					X			
4/23/20	17:27		7	4oz Glass	Ice	-003	X	X					X			
4/23/20	18:18		8	4oz Glass	Ice	-004	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4/24/20	11:30				4/24	11:30
4/24	1900			courier	4/25/20	9:20

Remarks:
Please also send the report to Annie McCawley & Julie Linn.
AMcCawley@HRLcomp.com
JLinn@HRLcomp.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 20, 2020

Tom Bynum

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (505) 350-1336
FAX:

RE: Ice Dancer 30 Com 2H Nov 2018 OrderNo.: 2005575

Dear Tom Bynum:

Hall Environmental Analysis Laboratory received 3 sample(s) on 5/14/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2005575**
Date Reported: **5/20/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: FS-12-0'
Project: Ice Dancer 30 Com 2H Nov 2018
Collection Date: 5/11/2020 4:45:00 PM
Lab ID: 2005575-001 **Matrix:** SOIL
Received Date: 5/14/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	15000	910		mg/Kg	100	5/19/2020 7:12:28 PM
Motor Oil Range Organics (MRO)	23000	4500		mg/Kg	100	5/19/2020 7:12:28 PM
Surr: DNOP	0	55.1-146	S	%Rec	100	5/19/2020 7:12:28 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	320	60		mg/Kg	20	5/19/2020 1:31:22 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**
Benzene	ND	0.025		mg/Kg	1	5/17/2020 1:19:36 AM
Toluene	ND	0.049		mg/Kg	1	5/17/2020 1:19:36 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/17/2020 1:19:36 AM
Xylenes, Total	ND	0.099		mg/Kg	1	5/17/2020 1:19:36 AM
Surr: 1,2-Dichloroethane-d4	93.6	70-130		%Rec	1	5/17/2020 1:19:36 AM
Surr: 4-Bromofluorobenzene	69.3	70-130	S	%Rec	1	5/17/2020 1:19:36 AM
Surr: Dibromofluoromethane	93.8	70-130		%Rec	1	5/17/2020 1:19:36 AM
Surr: Toluene-d8	107	70-130		%Rec	1	5/17/2020 1:19:36 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/17/2020 1:19:36 AM
Surr: BFB	102	70-130		%Rec	1	5/17/2020 1:19:36 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005575**
Date Reported: **5/20/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: FS-12-6'
Project: Ice Dancer 30 Com 2H Nov 2018
Collection Date: 5/11/2020 3:57:00 PM
Lab ID: 2005575-002 **Matrix:** SOIL
Received Date: 5/14/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	10	9.6		mg/Kg	1	5/19/2020 8:01:13 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/19/2020 8:01:13 PM
Surr: DNOP	100	55.1-146		%Rec	1	5/19/2020 8:01:13 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	59		mg/Kg	20	5/19/2020 2:08:26 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**
Benzene	ND	0.024		mg/Kg	1	5/17/2020 1:50:16 AM
Toluene	ND	0.047		mg/Kg	1	5/17/2020 1:50:16 AM
Ethylbenzene	ND	0.047		mg/Kg	1	5/17/2020 1:50:16 AM
Xylenes, Total	ND	0.094		mg/Kg	1	5/17/2020 1:50:16 AM
Surr: 1,2-Dichloroethane-d4	97.5	70-130		%Rec	1	5/17/2020 1:50:16 AM
Surr: 4-Bromofluorobenzene	96.1	70-130		%Rec	1	5/17/2020 1:50:16 AM
Surr: Dibromofluoromethane	95.2	70-130		%Rec	1	5/17/2020 1:50:16 AM
Surr: Toluene-d8	104	70-130		%Rec	1	5/17/2020 1:50:16 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/17/2020 1:50:16 AM
Surr: BFB	102	70-130		%Rec	1	5/17/2020 1:50:16 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005575**
Date Reported: **5/20/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: FS-12-11'
Project: Ice Dancer 30 Com 2H Nov 2018
Collection Date: 5/11/2020 4:41:00 PM
Lab ID: 2005575-003 **Matrix:** SOIL
Received Date: 5/14/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/18/2020 6:17:50 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/18/2020 6:17:50 PM
Surr: DNOP	94.5	55.1-146		%Rec	1	5/18/2020 6:17:50 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	5/19/2020 2:20:47 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**
Benzene	ND	0.025		mg/Kg	1	5/17/2020 2:20:15 AM
Toluene	ND	0.050		mg/Kg	1	5/17/2020 2:20:15 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/17/2020 2:20:15 AM
Xylenes, Total	ND	0.099		mg/Kg	1	5/17/2020 2:20:15 AM
Surr: 1,2-Dichloroethane-d4	96.8	70-130		%Rec	1	5/17/2020 2:20:15 AM
Surr: 4-Bromofluorobenzene	98.7	70-130		%Rec	1	5/17/2020 2:20:15 AM
Surr: Dibromofluoromethane	95.8	70-130		%Rec	1	5/17/2020 2:20:15 AM
Surr: Toluene-d8	107	70-130		%Rec	1	5/17/2020 2:20:15 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/17/2020 2:20:15 AM
Surr: BFB	104	70-130		%Rec	1	5/17/2020 2:20:15 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005575**

20-May-20

Client: Devon Energy

Project: Ice Dancer 30 Com 2H Nov 2018

Sample ID: **MB-52555**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **52555**	RunNo: **69004**							
Prep Date: **5/19/2020**	Analysis Date: **5/19/2020**	SeqNo: **2390685**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52555**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **52555**	RunNo: **69004**							
Prep Date: **5/19/2020**	Analysis Date: **5/19/2020**	SeqNo: **2390686**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005575**

20-May-20

Client: Devon Energy

Project: Ice Dancer 30 Com 2H Nov 2018

Sample ID: **LCS-52490** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **52490** RunNo: **68971**

Prep Date: **5/15/2020** Analysis Date: **5/18/2020** SeqNo: **2387773** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.0	70	130			
Surr: DNOP	3.8		5.000		75.1	55.1	146			

Sample ID: **MB-52490** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **52490** RunNo: **68971**

Prep Date: **5/15/2020** Analysis Date: **5/18/2020** SeqNo: **2387774** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.5		10.00		85.2	55.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005575**
20-May-20

Client: Devon Energy
Project: Ice Dancer 30 Com 2H Nov 2018

Sample ID: **mb-52478** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **52478** RunNo: **68938**
Prep Date: **5/14/2020** Analysis Date: **5/16/2020** SeqNo: **2385946** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.48		0.5000		95.5	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.2	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.7	70	130			
Surr: Toluene-d8	0.49		0.5000		98.6	70	130			

Sample ID: **lcs-52478** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **52478** RunNo: **68938**
Prep Date: **5/14/2020** Analysis Date: **5/15/2020** SeqNo: **2385947** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	1.000	0	87.0	80	120			
Toluene	1.0	0.050	1.000	0	101	80	120			
Ethylbenzene	1.0	0.050	1.000	0	102	80	120			
Xylenes, Total	3.1	0.10	3.000	0	103	80	120			
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		94.5	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.0	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		95.7	70	130			
Surr: Toluene-d8	0.51		0.5000		102	70	130			

Sample ID: **mb-52494** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **52494** RunNo: **68951**
Prep Date: **5/15/2020** Analysis Date: **5/17/2020** SeqNo: **2386624** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.48		0.5000		95.6	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		95.4	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		91.9	70	130			
Surr: Toluene-d8	0.54		0.5000		108	70	130			

Sample ID: **lcs-52494** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **52494** RunNo: **68951**
Prep Date: **5/15/2020** Analysis Date: **5/16/2020** SeqNo: **2386625** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.9	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		98.1	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005575**
20-May-20

Client: Devon Energy
Project: Ice Dancer 30 Com 2H Nov 2018

Sample ID: **lcs-52494** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **52494** RunNo: **68951**
Prep Date: **5/15/2020** Analysis Date: **5/16/2020** SeqNo: **2386625** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	0.47		0.5000		94.7	70	130			
Surr: Toluene-d8	0.53		0.5000		107	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005575**

20-May-20

Client: Devon Energy

Project: Ice Dancer 30 Com 2H Nov 2018

Sample ID: **mb-52478** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **PBS** Batch ID: **52478** RunNo: **68938**

Prep Date: **5/14/2020** Analysis Date: **5/16/2020** SeqNo: **2385968** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	510		500.0		102	70	130			

Sample ID: **lcs-52478** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **LCSS** Batch ID: **52478** RunNo: **68938**

Prep Date: **5/14/2020** Analysis Date: **5/15/2020** SeqNo: **2385969** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.1	70	130			
Surr: BFB	510		500.0		101	70	130			

Sample ID: **mb-52494** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **PBS** Batch ID: **52494** RunNo: **68951**

Prep Date: **5/15/2020** Analysis Date: **5/17/2020** SeqNo: **2386639** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	530		500.0		105	70	130			

Sample ID: **lcs-52494** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **LCSS** Batch ID: **52494** RunNo: **68951**

Prep Date: **5/15/2020** Analysis Date: **5/17/2020** SeqNo: **2386640** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	510		500.0		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **DEVON ENERGY** Work Order Number: **2005575** RcptNo: 1

Received By: **Isaiah Ortiz** **5/14/2020 9:30:00 AM** I_Ox

Completed By: **Isaiah Ortiz** **5/14/2020 10:49:53 AM** I_Ox

Reviewed By: DAD 5/18/20
DAD 5/19/20

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐	
2. How was the sample delivered?	Courier			

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: JR 5/14/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.3	Good	Not Present			

Chain-of-Custody Record

Client: Devon Energy
Tom Bynum
Mailing Address: 6488 Seven Rivers Hwy
Artesia, NM 88211
Phone #: 580-748-1613
email or Fax#: tom.bynum@dvn.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time: 5 Day
☒ Standard ☐ Rush
Project Name: Ice Dancer 30 com 21H NOV 2018
Project #: 20715693
Project Manager: Tom Bynum
Sampler: T. Elwell (HRL)
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 3.2+0.1(CF) 3.3 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2005575	BTEX / MTBE / TMB's (8021)	TPH: 8015D(GRO / DRO / MRO) 8015M	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/11/20	16:45	Soil	FS-12-0'	4oz Glass	Ice	-001	X	X					X			
5/11/20	15:57	Soil	FS-12-6'	4oz Glass	Ice	-002	X	X					X			
5/11/20	16:41	Soil	FS-12-11'	4oz Glass	Ice	-003	X	X					X			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5/12/20	1000	Taylor Elwell		Sa	5/13	1000
5/13	1900			Courier	5/14/20	0930

Remarks: Please also send report to: jlinn@hrlcomp.com tclwell@hrlcomp.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 02, 2020

Tom Bynum
Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (505) 350-1336
FAX:

RE: Ice Dancer 30 Fed Com 2H- Nov 2018 OrderNo.: 2005A43

Dear Tom Bynum:

Hall Environmental Analysis Laboratory received 3 sample(s) on 5/23/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2005A43**
Date Reported: **6/2/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy **Client Sample ID:** SP-1
Project: Ice Dancer 30 Fed Com 2H- Nov 2018 **Collection Date:** 5/20/2020 1:04:00 PM
Lab ID: 2005A43-001 **Matrix:** SOIL **Received Date:** 5/23/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/29/2020 12:30:37 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/29/2020 12:30:37 PM
Surr: DNOP	94.2	55.1-146		%Rec	1	5/29/2020 12:30:37 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	6/1/2020 2:04:45 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	5/27/2020 6:55:06 PM
Toluene	ND	0.047		mg/Kg	1	5/27/2020 6:55:06 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/27/2020 6:55:06 PM
Xylenes, Total	ND	0.094		mg/Kg	1	5/27/2020 6:55:06 PM
Surr: 1,2-Dichloroethane-d4	95.4	70-130		%Rec	1	5/27/2020 6:55:06 PM
Surr: 4-Bromofluorobenzene	94.8	70-130		%Rec	1	5/27/2020 6:55:06 PM
Surr: Dibromofluoromethane	96.3	70-130		%Rec	1	5/27/2020 6:55:06 PM
Surr: Toluene-d8	95.6	70-130		%Rec	1	5/27/2020 6:55:06 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/27/2020 6:55:06 PM
Surr: BFB	103	70-130		%Rec	1	5/27/2020 6:55:06 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005A43**
Date Reported: **6/2/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy **Client Sample ID:** SP-2
Project: Ice Dancer 30 Fed Com 2H- Nov 2018 **Collection Date:** 5/20/2020 1:06:00 PM
Lab ID: 2005A43-002 **Matrix:** SOIL **Received Date:** 5/23/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/29/2020 12:54:47 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/29/2020 12:54:47 PM
Surr: DNOP	85.2	55.1-146		%Rec	1	5/29/2020 12:54:47 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	6/1/2020 2:17:09 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	5/27/2020 7:24:20 PM
Toluene	ND	0.047		mg/Kg	1	5/27/2020 7:24:20 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/27/2020 7:24:20 PM
Xylenes, Total	ND	0.093		mg/Kg	1	5/27/2020 7:24:20 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	5/27/2020 7:24:20 PM
Surr: 4-Bromofluorobenzene	96.3	70-130		%Rec	1	5/27/2020 7:24:20 PM
Surr: Dibromofluoromethane	104	70-130		%Rec	1	5/27/2020 7:24:20 PM
Surr: Toluene-d8	99.0	70-130		%Rec	1	5/27/2020 7:24:20 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/27/2020 7:24:20 PM
Surr: BFB	105	70-130		%Rec	1	5/27/2020 7:24:20 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005A43**
Date Reported: **6/2/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy **Client Sample ID:** SP-3
Project: Ice Dancer 30 Fed Com 2H- Nov 2018 **Collection Date:** 5/20/2020 1:13:00 PM
Lab ID: 2005A43-003 **Matrix:** SOIL **Received Date:** 5/23/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/30/2020 1:49:50 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/30/2020 1:49:50 PM
Surr: DNOP	60.5	55.1-146		%Rec	1	5/30/2020 1:49:50 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	690	60		mg/Kg	20	6/1/2020 2:29:34 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	5/27/2020 7:53:29 PM
Toluene	ND	0.048		mg/Kg	1	5/27/2020 7:53:29 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/27/2020 7:53:29 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/27/2020 7:53:29 PM
Surr: 1,2-Dichloroethane-d4	96.1	70-130		%Rec	1	5/27/2020 7:53:29 PM
Surr: 4-Bromofluorobenzene	96.2	70-130		%Rec	1	5/27/2020 7:53:29 PM
Surr: Dibromofluoromethane	101	70-130		%Rec	1	5/27/2020 7:53:29 PM
Surr: Toluene-d8	96.5	70-130		%Rec	1	5/27/2020 7:53:29 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/27/2020 7:53:29 PM
Surr: BFB	101	70-130		%Rec	1	5/27/2020 7:53:29 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005A43**
02-Jun-20

Client: Devon Energy
Project: Ice Dancer 30 Fed Com 2H- Nov 2018

Sample ID: **MB-52800**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **52800**	RunNo: **69292**
Prep Date: **6/1/2020**	Analysis Date: **6/1/2020**	SeqNo: **2403563** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52800**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **52800**	RunNo: **69292**
Prep Date: **6/1/2020**	Analysis Date: **6/1/2020**	SeqNo: **2403565** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005A43**
02-Jun-20

Client: Devon Energy
Project: Ice Dancer 30 Fed Com 2H- Nov 2018

Sample ID: **LCS-52738** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **52738** RunNo: **69198**
Prep Date: **5/28/2020** Analysis Date: **5/29/2020** SeqNo: **2399901** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57	10	50.00	0	114	70	130			
Surr: DNOP	4.6		5.000		92.5	55.1	146			

Sample ID: **MB-52738** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **52738** RunNo: **69198**
Prep Date: **5/28/2020** Analysis Date: **5/29/2020** SeqNo: **2399902** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		101	55.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005A43**
02-Jun-20

Client: Devon Energy
Project: Ice Dancer 30 Fed Com 2H- Nov 2018

Sample ID: **LCS-52674** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **52674** RunNo: **69165**
Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2397013** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	89.8	80	120			
Toluene	1.0	0.050	1.000	0	99.7	80	120			
Ethylbenzene	1.0	0.050	1.000	0	104	80	120			
Xylenes, Total	3.1	0.10	3.000	0	103	80	120			
Surr: 1,2-Dichloroethane-d4	0.46		0.5000		91.7	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.1	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		92.5	70	130			
Surr: Toluene-d8	0.49		0.5000		97.5	70	130			

Sample ID: **mb-52674** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **52674** RunNo: **69165**
Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2397014** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.46		0.5000		92.5	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.0	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.8	70	130			
Surr: Toluene-d8	0.48		0.5000		96.1	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005A43**

02-Jun-20

Client: Devon Energy

Project: Ice Dancer 30 Fed Com 2H- Nov 2018

Sample ID: **lcs-52674**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **52674**	RunNo: **69165**
Prep Date: **5/25/2020**	Analysis Date: **5/27/2020**	SeqNo: **2397020** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.3	70	130			
Surr: BFB	550		500.0		110	70	130			

Sample ID: **mb-52674**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **52674**	RunNo: **69165**
Prep Date: **5/25/2020**	Analysis Date: **5/27/2020**	SeqNo: **2397021** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	550		500.0		109	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: DEVON ENERGY Work Order Number: 2005A43 RcptNo: 1

Received By: **Juan Rojas** 5/23/2020 8:00:00 AM

Completed By: **Juan Rojas** 5/23/2020 8:53:36 AM

Reviewed By: 05/23/20

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: JR 5/23/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.8	Good				

Chain-of-Custody Record

Client: Devon Energy
Tom Bynum
Mailing Address: 6488 Seven Rivers Hwy
Artesia, NM 88211
Phone #: 580-748-1613
email or Fax#: tom.bynum@dvn.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time: 5 Day
☒ Standard ☐ Rush
Project Name: Ice Dancer 31 Fed Com 2H - Nov 2018
Project #: 20715693
Project Manager: Tom Bynum
Sampler: T. Elwell (HRL)
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 0.8-0=0.8 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2005443	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/21/20	13:04	Soil	SP-1	4oz Glass	Ice	-001	X	X					X			
5/21/20	13:06	Soil	SP-2	4oz Glass	Ice	-002	X	X					X			
5/21/20	13:13	Soil	SP-3	4oz Glass	Ice	-003	X	X					X			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5/22/20	0800	Tonya Elwell				
5/22	1900			courier	5/23/20	8:00

Remarks: Please also send report to jlinn@hrlcomp.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Attachment C

Photographs

View of the Site looking south, September 2019

View of the Site looking southwest September 2019

View of the Site looking west/northwest, September 2019